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Contents for Week of November 18, 1940. Vol. XIX. No.19.

1. Embattled Greece, Where History Repeats Itself
2. U. S. Bases in Pacific: From Philippines to Alaska and Canal Zone
3. Badlands of South Dakota Give Up Rare Fossil Bones
4. France-in-America Scattered over Wide Area
5. Dardanelles and Bosporus, Held by Turks, Long Coveted by Others

Photograph by Maynard Owen Williams

PIPES OF PAN PACED THE STATELY DRAMA OF EARLY GREECE

Photographed on the stage of the Theater of Dionysus, Athens, the satyr leaps with "jitterbug" vim and the nymph dances as in processions of Dionysus, from which Greek drama was born. The masterpieces of Æschylus and Sophocles had day-time "first nights" in this outdoor theater, before about 17,000 spectators, some 2,300 years ago (Bulletin No. 1).

HOW TEACHERS MAY OBTAIN THE BULLETINS

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General Headquarters, Washington, D. C.

Embattled Greece, Where History Repeats Itself

ITALIAN troops pouring across the northwestern frontier of Greece brought war again into the rugged, mountain-ribbed land where famous conflicts of ancient history have changed the course of civilization. Battles in Greece put such names as Salamis into history, and made memorable such geographic features as the Plain of Marathon and the Pass of Thermopylae.

Greece is a rough, tough little land which had borne the yoke of alien rule many times before regaining its national independence, more than a century ago. It became a province of the Roman Empire in 146 B. C., of the Byzantine Empire in 395 A. D., of the Ottoman Empire in 1456.

In 1829 Greece won its independence from Turkey, and became a kingdom. The Greek Republic was established by plebiscite in 1924, but in 1935 another plebiscite restored the monarchy, with George II as king.

Pindus Mountains a Natural Line of Defense

Almost all of Greece is mountainous. A series of ranges presents many natural obstacles to the advance of modern mechanized military divisions. The Pindus Mountains, running down from Albania into Greece, form the backbone of the northwestern Greek area into which the Italians made their first advance. These mountains hinder communications between northern Greece's Aegean and Ionian provinces to such an extent that no east-west railway crosses the country north of the Gulf of Corinth.

Well-guarded passes afford possible, if difficult, invasion routes eastward to the plains of Macedonia and Thessaly. Spur ranges run eastward and southeastward from the Pindus "stem," like teeth from the back of a comb.

Although important agricultural areas of Greece face the Ionian Sea in the west, the key positions in military and naval strategy are along the greatly indented, island-screened Aegean coast in the east. There the administrative and commercial life of Greece is centered at Athens, the capital, and its port, Piraeus, in the south, and Thessalonike (Salonika) in the north.

Despite amazing variety of scenery and topography, Greece is only about the size of New York State. Islands (largest and most important: Crete) make up a fifth of the total area. Although it is chiefly an agricultural country, only a fifth of its area can be farmed. The bulk of the nation is barren, rocky upland, providing only limited pasturage for sheep and goats.

Sea and Soil Support the Greeks

Extensive draining operations in Boeotia and in Thrace have added thousands of acres to the country's arable total. Reforestation is slowly restoring the forests, exhausted by careless cutting.

Wheat, corn, barley, rye, oats, and rice are grown, but all Greece's cereals are not sufficient for her needs. Olives, currants, tobacco, cotton, and grapes are other important products, as well as lemons, oranges, and figs.

Greek mills and factories turn out olive oil, wine, chemicals, textiles, and prepared foods. Among the varied mineral deposits being exploited are iron, zinc, copper, lead, emery, manganese, nickel, magnesite ore, lignite, salt, and marble. In 1938, Germany purchased 38 per cent of Greek exports and provided 28 per cent of Greece's imports. The United States was second in purchasing Greek exports, with Great Britain second in supplying Greece's import needs.

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Photograph by B. Anthony Stewart

SHEPHERDS ON GREECE'S ROCKY HILLS WEAR LEATHER SHOES WITH BUMPERS

In the town of Ioánnina, in northwestern Greece near scenes of the first border clashes between Greek and Italian troops, shepherd's shoes (or *tsaruchia*) are still carefully made by hand. Formed on wooden lasts, and stitched into shape, they are finished off with a turned-up tube of leather projecting from the toe as a bumper on rocky mountain paths. Red or blue pompons on less extreme shoe toes also serve to cushion the foot (Bulletin No. 1).

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U. S. Bases in Pacific: From Philippines to Alaska and Canal Zone

(This is the seventh of a series on the defense bases)

THE United States' acquisition of new defense bases lying off the Atlantic coast, from Newfoundland south to British Guiana, with particular emphasis on defenses around the Panama Canal in the Caribbean, raises the question about Pacific defenses: "How many Navy establishments does Uncle Sam have in or around the Pacific Ocean now?"

The most western naval activity in the Pacific is at Cavite on Manila Bay, Philippine Islands, base of the U. S. Asiatic Fleet, where the Navy has a yard and some air facilities. The Navy has, of course, also operated on the Yangtze River in China.

Hawaii, in Mid-Pacific, Is Strongest Base

Due east of Cavite, the island of Guam, 1,500 miles nearer the western coast of the United States, is a naval station. A garrison of Marines and a small shore naval force are maintained. This isle, surrounded by island groups under Japanese control, was ceded to the United States by Spain in 1898, following the Spanish-American War.

Southeast from Guam, below the Equator, lie the Samoan Islands, where, in the harbor of Pago Pago, Tutuila was established as a naval and coaling station back in 1872. This is the most southerly of the Pacific stations, being almost due west of Lima, Peru, and almost 4,200 miles southwest of San Francisco.

North-northeast of Pago Pago 2,275 miles, almost in the middle of the Pacific, is Pearl Harbor on the Hawaiian Island of Oahu, seven miles west of Honolulu. This, one of the largest and strongest of the United States naval stations, has also an air and submarine base. It lies about 2,100 miles southwest of San Francisco.

On the same island another air station is under construction at Kaneohe. On lonely Midway Island, at the extreme western end of the Hawaiian group, another small station is being established.

Several Alaskan Stations Being Built

Air stations are under construction on Kodiak Island, off the southern shore of central Alaska; at Sitka, on another island almost due east of Kodiak across the Gulf of Alaska, where the Navy has had air facilities; and at Unalaska, 600 miles southwest of Kodiak, on one of the Aleutian Islands.

This latter station is near the "great circle routes" between Japan on one side of the Pacific and Seattle and San Francisco on the other. The Navy shares the air defense duties in Alaska with several new Army air bases—notably at Fairbanks, Anchorage, and Metlakatla.

On the Pacific Coast of the United States proper there are naval air stations at San Diego and San Pedro, the latter also being a naval operating base, as is San Francisco.

The large Pacific coast navy yards are located on Mare Island and Puget Sound, with some naval facilities in operation at San Clemente Island, California, and Bremerton, Washington, and under construction at Seattle. An air station is being built on Tongue Point, Washington.

At Balboa, Pacific terminus of the Panama Canal, is based the special service

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Of the 7,197,000 Greeks, most of those who do not live by the soil make a living directly or indirectly from the sea. With a land so strikingly sea-indented, Greeks have naturally been the leading maritime people of the eastern Mediterranean since the days of the Phoenicians.

The spectacular Corinth Canal, through the Isthmus of Corinth, provides a short cut for shipping between the Ionian and Aegean Seas, and makes an artificial island of southern Greece (the Peloponnesus). A recent addition to the limited Greek railroad system was a spur joining a Bulgarian line which runs to Sofia.

In normal times, Athens is one of the busiest airline centers in Europe, with connections to England, Germany, Italy, the northern Balkans, Africa, India, the Netherlands Indies, and Australia.

Note: Greece and its islands are described in the following articles in the *National Geographic Magazine:* "Today's Evidence of Grecian Glory," March, 1940; and "New Greece, the Centenarian, Forges Ahead," December, 1930.

The following GEOGRAPHIC NEWS BULLETINS also contain material: "Corfu, Watchdog of The Adriatic, Has Fallen to Many Conquerors," May 1, 1939; "Crete, Focus of Greek Revolt," March 25, 1935; "Greece Dusts Off Her Throne," November 4, 1935.

See also The Society's Map of the Classical Lands of the Mediterranean, which shows places of historical and present-day interest in Greece (paper 50¢, linen 75¢). Small inset maps show the terrain surrounding ancient Athens and ancient Rome, and the extent of the Roman Empire in Trajan's time.

Bulletin No. 1, November 18, 1940.

Photograph by Maynard Owen Williams

ATHENS BECAME A SEA POWER BY REMOTE CONTROL

Munychia (above) is one of several shallow bays on the coast southwest of Athens, where little ports made ancient Athens a sea power. When navies of shallow craft decided the course of history, Munychia harbored as many as 82 of the Athenian fleet of fighting ships, some of them 165 feet long. Now no vessel more decisive than a yacht or sailboat can lie there. To the north, near the rail line into Athens, stands a monument to the English and French soldiers who fell in a campaign of the Crimean War in 1854. Up the Hill of Munychia (left background) travelers climb to see Athens to the northeast and Salamis to the west, where a naval victory saved the Golden Age of Greece from Persian invaders.

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Badlands of South Dakota Give up Rare Fossil Bones

A RHINOCEROS skull 28 inches long and the skull of a huge pig that, when alive, measured fully eight feet from snout to tail are among the trophies bagged recently by "big-game hunters" in the Badlands of South Dakota.

The "hunters" were members of a paleontological expedition sent out jointly by the National Geographic Society and the South Dakota State School of Mines, and the bones were fossils that have lain in the Badlands rocks for a period estimated by geologists at 30 million years.

After three months spent in the field, the expedition has wound up its season's work with an unusually large and valuable collection of specimens. The 200 or more items, weighing several tons, are now at the School of Mines in Rapid City, South Dakota, where the work of preparing and mounting them for exhibition will be carried on, and where accurate classifications will be made.

Bones of Three-Toed Horses Unearthed

Among the other specimens found by the expedition were fossil bones of tapirs, graceful little three-toed horses (the remote ancestors of present-day horses), protoceros (remotely related to deer and antelope), the little-known ancodus, and a number of small rodents. Rarest of the specimens are bones of birds—only a few have previously been found in the Badlands.

The prize find of this group was a fossil egg still firmly held in its matrix of rock. A few plant fossils were found: fossil hackberry seeds and petrified hackberry wood.

Led by Dr. Joseph P. Connolly, President of the School of Mines, and James D. Bump, Curator of the School of Mines Museum, the expedition, including seven other members, pitched camp in a wild, fantastically eroded region 25 miles from the nearest highway. Work was carried on where mid-afternoon temperatures often reached 120 and 130 degrees Fahrenheit. Some of the heaviest specimens were found near the tops of high, slender pinnacles (illustration, next page), and had to be lowered by block-and-tackle.

Sandstone of Oligocene Times

The expedition collected many rare specimens because the work was confined to geological formations in which very little work has been done heretofore. These are the Channel Sandstones, so called because the beds were formed by deposits filling stream channels worn in the clay surfaces in Oligocene times. The surrounding clay—now turned to shale—is softer and much more easily worked, and from it have come most of the Badlands specimens previously collected.

In the museum workrooms at the School of Mines, the specimens are being placed one after another on the "operating table." Each is protected by yards of bandages soaked in a plaster of Paris "soup." These bandages, allowed to stiffen before removal from the field, furnished ideal shipping cases.

Note: For additional material on South Dakota see the following articles in the *National Geographic Magazine:* "Man's Farthest Aloft," January, 1936 (National Geographic Society-U. S. Army Air Corps Stratosphere Expedition, which reached the world's record altitude of 72,395 feet); and "The Black Hills Once Hunting Grounds of The Red Men," September, 1927.

See also in the GEOGRAPHIC NEWS BULLETINS: "Expedition to Seek Bones of American Rhinoceros," March 18, 1940. The Society's new Map of the United States, which is to be issued as a special supplement of the December, 1940, issue of the *National Geographic Magazine*, shows the Badlands National Monument. (Separate copies of this map will be available for 50¢ on paper and 75¢ on linen.)

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squadron of the Navy, composed of several units of the fleet used as a patrol for the Canal and among the maze of small islands in surrounding waters.

Note: The following articles in the *National Geographic Magazine* contain additional material: "Our Air Frontier in Alaska," October, 1940; "Return to Manila," October, 1940; "Hawaii, Then and Now," October, 1938; "Guam—Perch of The China Clippers," July, 1938.

See also these GEOGRAPHIC NEWS BULLETINS for further references: "Eruption Rips Mauna Loa, Hawaiian Volcano Giant," April 29, 1940; "Defense at Guam, Sunset Extremity of the U. S.," January 30, 1939; "Alaska's Wealth Now Recognized Among Sea Treasures," May 9, 1938; "Wake Island, 'Stepping Stone' on Proposed Pacific Air Route," April 1, 1935; and "New Philippine Commonwealth Shows American and Spanish Influence," October 14, 1935.

The Society's Map of the Pacific shows the present base areas of the United States and also those places under consideration as future sites for defense purposes (paper 50¢; linen 75¢).

Bulletin No. 2, November 18, 1940.

Photograph by J. Baylor Roberts

WHAT IS MERE CHILD'S PLAY TO THE FILIPINO BOY IS SERIOUS BUSINESS TO HIS ISLAND HOMELAND

The air base of the U. S. Navy at Manila Bay, in the Philippines, takes the United States into range of Asia's problems. The base lies southwest of Japan, 800 miles due east of French Indo-China, and 1,500 miles northeast of Singapore. Along with the use of English in their classes, Filipino school children adopt such other practices of American youngsters as model airplane races, for which each boy builds his own plane.

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France-in-America Scattered over Wide Area

THE territory held by France in the Americas, aggregating an area one-sixth as large as the mother country in Europe, or some 36,000 square miles, may be "adopted" by its American neighbors if it becomes too much involved in Europe's war. The United States has pointed out that too close military cooperation between defeated France and Germany may result in steps by the American republics to occupy the French colonies of Martinique, Guadeloupe, French Guiana, St. Pierre, and Miquelon.

Each of these spots of French dominion on the Western Hemisphere's map stands close to some defense base established by the United States. Martinique and Guadeloupe, in the Lesser Antilles island chain of the eastern Caribbean, lie between the newly acquired bases of Trinidad and St. Lucia on the south and Antigua on the north; just northwest of them are the older U. S. bases, the Virgin Islands and Puerto Rico. French Guiana on the northern coast of South America lies east of British Guiana; St. Pierre and Miquelon just south of Newfoundland.

Due west of the Panama Canal, southwest of Mexico in the Pacific Ocean, is the isolated French island of Clipperton.

FRENCH GUIANA. Smaller (34,740 square miles), less populous, and less developed than Surinam and British Guiana to the west, French Guiana has an area slightly larger than that of Maine. It lies between Brazil, on the east, and Surinam (formerly Dutch Guiana) on the west. The Tumuc-Humac Mountains bound the territory on the south. French Guiana rises gradually from a northern strip of alluvial plain and an area of "swamp savannas" to heavily forested areas and mountains in the center and south. River valleys deeply trench the country. Settlement centers along the wet, hot coast. The population estimate of 25,000 excludes the Indians and Negroes of the forest. The coastal population is mixed European; the language a colorful patois derived from several tongues. Off the coast lies the famous penal colony of Devil's Island. Cayenne, on a coastal island, is the capital and chief city.

MARTINIQUE. The southernmost French island in the West Indies is a mountainous mass of volcanic origin, 385 square miles in area. Mont Pelée (4,200 feet), in the north, staged a violent eruption in 1902 which destroyed St. Pierre, at that time the largest city, killed 40,000 people, and did enormous damage (illustration, next page). Fertile valleys and deep forested gorges are cut into the steep mountains. Rainfall is heavy and rivers numerous. The island heights are cool and invigorating, in contrast to the hot, unhealthful lowlands.

Sugar cane is the most important crop; sugar refineries on the island prepare the finished product. Rum, cacao, coffee, tobacco, vanilla, pineapples, and bananas are leading exports. Most of the 235,000 people are Negroes. Fort-de-France (population about 43,000) is the capital. Josephine, Napoleon's empress, was born in Martinique.

GUADELOUPE. Lying between the British islands of Dominica and Antigua in the eastern Caribbean, Guadeloupe consists of two distinct islands separated by a narrow strait. The eastern island is low-lying Grande Terre; Basse Terre on the west is larger and mountainous; their areas total 583 square miles. Highest peak on the island is volcanic Grande Soufrière (4,900 feet), from which there were destructive eruptions in 1797 and 1843. The leading port is Pointe-à-Pitre (popu-

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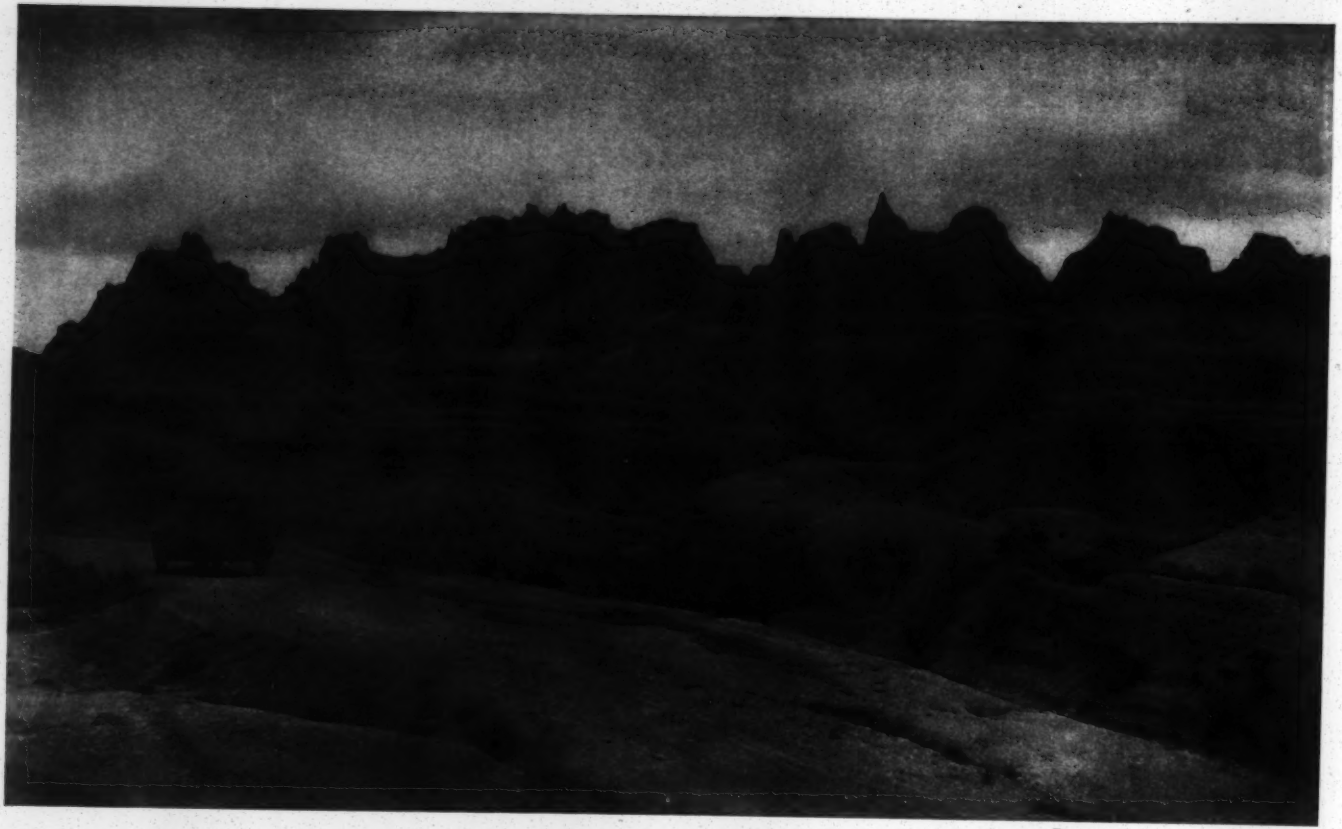

Photograph from Irwin D. Aldrich

SPIRES, DOMES, AND RIDGES ETCH A FANTASTIC SKYLINE IN THE BADLANDS OF SOUTH DAKOTA

During the past three months a National Geographic Society-South Dakota State School of Mines expedition has been digging up the fossil remains of strange mammals, birds, and plants that flourished here more than 30 million years ago. The Badlands were formed by erosion of surface water and wind on hard and soft beds of rock, which shaped the weird, highly colored formations of this desolate area, now a National Monument.

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Dardanelles and Bosporus, Held by Turks, Long Coveted By Others

WHEN German forces entered Romania to the north, and Italian forces invaded Greece to the southwest, the spot at which their courses appeared to focus was that treasured waterway of Turkey—the three-ply shipping channel composed of the Strait of the Dardanelles, the Sea of Marmara, and the Strait of the Bosporus.

Turkish authority over the strategic Straits has not been successfully challenged for 500 years, although for a similar period they have been an object of Russia's ambition.

Turkish generals on inspection tour along the Bosporus and Dardanelles must often rub their hands with glee, for the world has few important waterways so easily defensible from direct attack. This marine bottleneck, across which Asiatic Turkey "laps over" to its Massachusetts-sized "suburb" in Europe, separates the Aegean Sea from the Black Sea by northern and southern corridors with a vestibule between.

Natural Trenches Adapted to Naval Warfare

The southern corridor is the Strait of the Dardanelles, 35 miles of winding waterway narrowing from four miles to seven-tenths of a mile across. The vestibule is the miniature Sea of Marmara, less than half the size of Lake Erie.

The northern corridor is the 18-mile Bosporus, shorter, narrower, and swifter-flowing than the Dardanelles. The great city of Istanbul (Constantinople) stands on the western shore of the Bosporus at the point where it opens into the Sea of Marmara. The Bosporus varies in width from 1½ miles to a half-mile.

The two straits, at no point more than four miles wide, provide natural "defense trenches" projected from either end of the Sea of Marmara. A fort anywhere along the 52 miles of these narrows would lay down a murderous defensive barrage against naval attack.

Only through these straits can world shipping reach the oil and lumber ports of Romania, the tobacco ports of Bulgaria, the grain ports of the Russian Ukraine, the oil ports of the Russian Caucasus, and the trade of Turkey's metroplis, Istanbul. Of these four countries—Turkey, the U.S.S.R., Bulgaria, and Romania—the latter two have no seaports except those reached through the Bosporus and Dardanelles. Ships of more than two dozen lands usually enter the straits every year, but over two-thirds of the commerce, in normal times, was carried by vessels of Great Britain, Italy, Greece, Norway, and Soviet Russia.

Two-Way Current of Bosporus an Ancient Shipping Menace

Only since the Montreux Convention of 1936 have the several "interested States" allowed Turkey to refortify the straits, demilitarized under provisions of the Lausanne Convention of 1923. Turkey and Russia were the chief beneficiaries of the 1936 treaty: Turkish control over the straits was greatly strengthened; Russia was granted unlimited passage for her naval forces between the Black Sea and the Mediterranean, while added restrictions were placed on the number and tonnage of warships of foreign powers admitted to the Black Sea. Thus, because of Russia's overwhelming naval superiority among the powers that ring the Black Sea, that body of water became virtually a Soviet lake.

The elongated "S" of the Bosporus is one of the world's most beautiful and historic waterways. Medieval forts and castles and numerous red-roofed villages

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lation 30,000), on Grande Terre. Total population of the island is about 270,000, mostly of Negro or mixed blood.

Sugar and its by-products dominate the export trade, but cacao, bay, and other tropical plants and fruits are grown in quantities.

Guadeloupe is the administrative center for the surrounding "necklace" of five smaller French West Indies island colonies, one of which, St. Martin, is half under the authority of The Netherlands. The others are Marie Galante, St. Barthélemy, Désirade, and Les Saintes. Both Guadeloupe and Martinique were discovered by Columbus.

ST. PIERRE AND MIQUELON. These two adjacent islets off the south coast of Newfoundland were settled by the French about 1660, claimed by the British, and restored to France in 1814, on the condition that they would not be fortified.

Miquelon, the western and larger, is a double island, united by a narrow shingle bank five miles long, and has an area of ten square miles. St. Pierre, the capital of the colony, is on the 83-square-mile island of the same name. It has a harbor and contains most of the 3,500 people inhabiting the two islands.

Barren and rocky, they are frequently shrouded in fog, particularly in summer. Always an important base for the Grand Banks fisheries, the islands have suffered diminishing prosperity as the fishing industry has declined.

During the prohibition era in the United States, large amounts of liquors from St. Pierre and Miquelon were "bootlegged" along the U. S. coast.

Note: See also "Colorful Paths in Martinique and Guadeloupe," a natural-color inset of 13 illustrations in the March, 1938, issue of the *National Geographic Magazine*.

The French island possessions in the Western Hemisphere are shown on The Society's Map of Canada and the Map of Mexico, Central America and the West Indies. Each of these maps can be obtained for 50¢ on paper and 75¢ on linen.

Bulletin No. 4, November 18, 1940.

Photograph by Edwin L. Wisherd

NATURE'S "BOMBS" HAVE OFTEN FALLEN ON MARTINQUE

The strategic French island has, in Mt. Pelée, one of the world's most famous volcanoes, and, in Dr. Frank A. Perret (above), one of the world's most distinguished volcanologists. From the ruins of St. Pierre, the "Pompeii of the West Indies," which was wiped out by Pelée in 1902, Dr. Perret has collected such relics as carbonized bread, rice, spaghetti and many striking specimens of rock, volcanic glass, and volcanic "bombs" (in case, center).

buttress its shores, handsome villas are half-hidden by gardens and groves of umbrella pines, large steamers and small sailing craft churn its eddying waters. Ships stem the rushing stream with caution: on the surface the current flows to the Mediterranean, but below the surface there is a strong reverse undercurrent toward the Black Sea. Countercurrents also swirl along the shores.

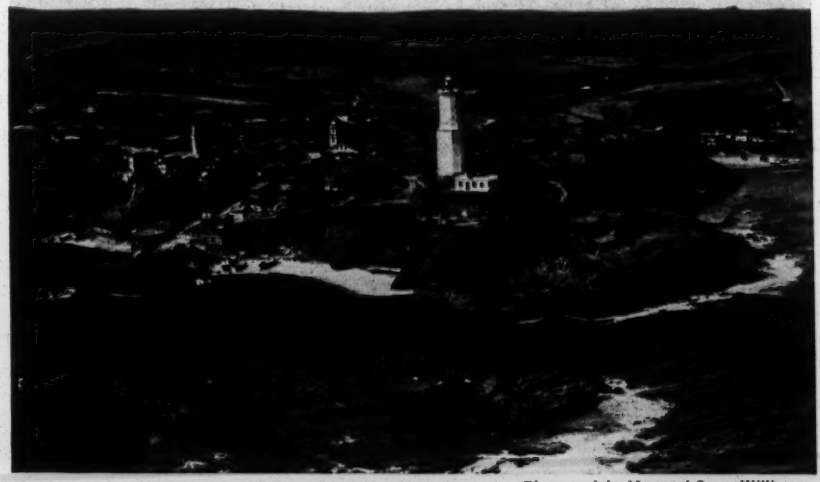
The name, Bosporus, is the Greek equivalent of Oxford (ox-ford), and derives from the ancient legend that Io, loved by Zeus, swam the channel in the form of a heifer, a shape imposed on her by jealous Hera. Through the Bosporus Jason piloted his Argonauts on their search for the Golden Fleece. Here Darius pushed his Persian hordes into Europe in 480 B. C. Here, too, Alexander stepped into the Asia he was to conquer, and Venetian and Genoese trading galleys made their way under the walls of Istanbul on their course to Trebizond (now Trabzon).

The southern Strait of the Dardanelles also has its famous city, now a dead one—Troy. Nine successive cities of Troy arose and fell on a site near the southern entrance to the Strait. Another ancient city, however, inspired its present name, as a development from Dardanus. The Dardanelles Strait was known to classicists as the Hellespont.

Note: The following articles in the *National Geographic Magazine* contain material on Turkey, the Bosporus, and the Dardanelles: "Transformation of Turkey," January, 1939; "The Road of The Crusaders," December, 1933; "Looking in on Everyday Life of New Turkey," April, 1932; and "Summer Holidays on The Bosporus," October, 1929.

See also The Society's Map of Europe and the Near East, and the Map of the Bible Lands (Cradle of Western Civilization). This latter map shows, in addition to the Dardanelles and the Bosporus, many other places with historic associations. Either map is obtainable for 50¢ on paper or 75¢ on linen.

Bulletin No. 5, November 18, 1940.



Photograph by Maynard Owen Williams

A EUROPEAN FINGER TIP POINTS TO ASIA ACROSS THE BOSPORUS

At the northern end of the Bosporus, where the Black Sea funnels into the Straits waterway on its way to the Aegean, troubled currents have crashed many ships against the shore, inspiring the legend of the Cyanean rocks, which were supposed to shift mysteriously from their beds to wreck approaching vessels. Their treachery was stopped by the first navigator who successfully squeezed through them, an honor awarded by myths to Jason, in the good ship *Argo*, on his quest for the Golden Fleece. To mark this menace to shipping, a white marble column was first erected on the dark hulk of a now-stationary Cyanean rock (lower left); then the Fanaraki lighthouse on Turkey's European shore (center). This waterway divides southeastern Europe from Asia.

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